

Records of Sixteen Cychrini and Carabini (Coleoptera, Carabidae) from Sichuan and Gansu, China, with Descriptions of Six New Subspecies

Yûki IMURA

Shinohara-chô 1249–8, Kôhoku-ku, Yokohama, 222–0026 Japan

and

Munehiro OKAMOTO

Department of Laboratory Animal Science, School of Veterinary Medicine,
Faculty of Agriculture, Tottori University, Tottori, 680–8553 Japan

Abstract Sixteen species belonging to the tribes Cychrini and Carabini (Calosomina and Carabina) are recorded from Sichuan and Gansu, China. Of these, six are described as new subspecies under the names *Cychrus bispinosus micangshanensis*, *Cy. schneideri xilinguensis*, *Sinoleptocarabus yokoae micangensis*, *Scambocarabus shaanxiensis yingshuibanus*, *Archaeocarabus vigil zaohongipennis* and *A. pseudolatipennis nagahatai*. *Cychrus shamaevi* is downgraded to a subspecies of *Cy. okamotoi* and *Calosoma inquisitor shaanxiense* is synonymized with *Ca. i. cyanescens*.

Early in the summer of 2002, the junior author of this paper visited China (Sichuan and Gansu) with the purpose of collecting fresh samples of carabid beetles for molecular studies. In this paper, we are going to give the result of morphological identification for the sixteen species belonging to the tribes Cychrini and Carabini obtained through the trip, six of which are described as new subspecies. Two nomenclatural changes are given for two other species, each belonging to *Cychrus* and *Calosoma*. For the higher classification of the subtribe Carabina, we follow IMURA's system (2002) constructed mainly upon the molecular phylogeny.

The abbreviations used herein are as follows; NSMT – Department of Zoology, National Science Museum (Nat., Hist.), Tokyo; LAST – Department of Laboratory Animal Science, School of Veterinary Medicine, Faculty of Agriculture, Tottori University, Tottori; YI – Yûki IMURA; MO – Munehiro OKAMOTO; YN – Yoshiyuki NAGAHATA.

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1. *Cychrus bispinosus micangshanensis* subsp. nov.

(Fig. 1)

Description. Length: 15.8 mm (including mandibles). Most closely allied to subsp. *dabashanensis* IMURA of the Dabashan Mountains, but differs from that race in the following points: 1) smaller in size; 2) hind angles of pronotum more strongly reflexed, with the tips more sharply pointed; 3) elytra robuster, with the primary callosities more prominently convex above and areas between intervals not punctate but scattered with small granules.

Holotype: ♀, above Yingshuiba [映水坝] (1,750 m), on the Micangshan [米苍山] Mts., N. Nanjiang Xian [南江县], NE. Sichuan, China, 12–VI–2002, MO & YN leg., separately preserved in colls. NSMT (dried specimen) & LAST (thoracic muscle for molecular studies).

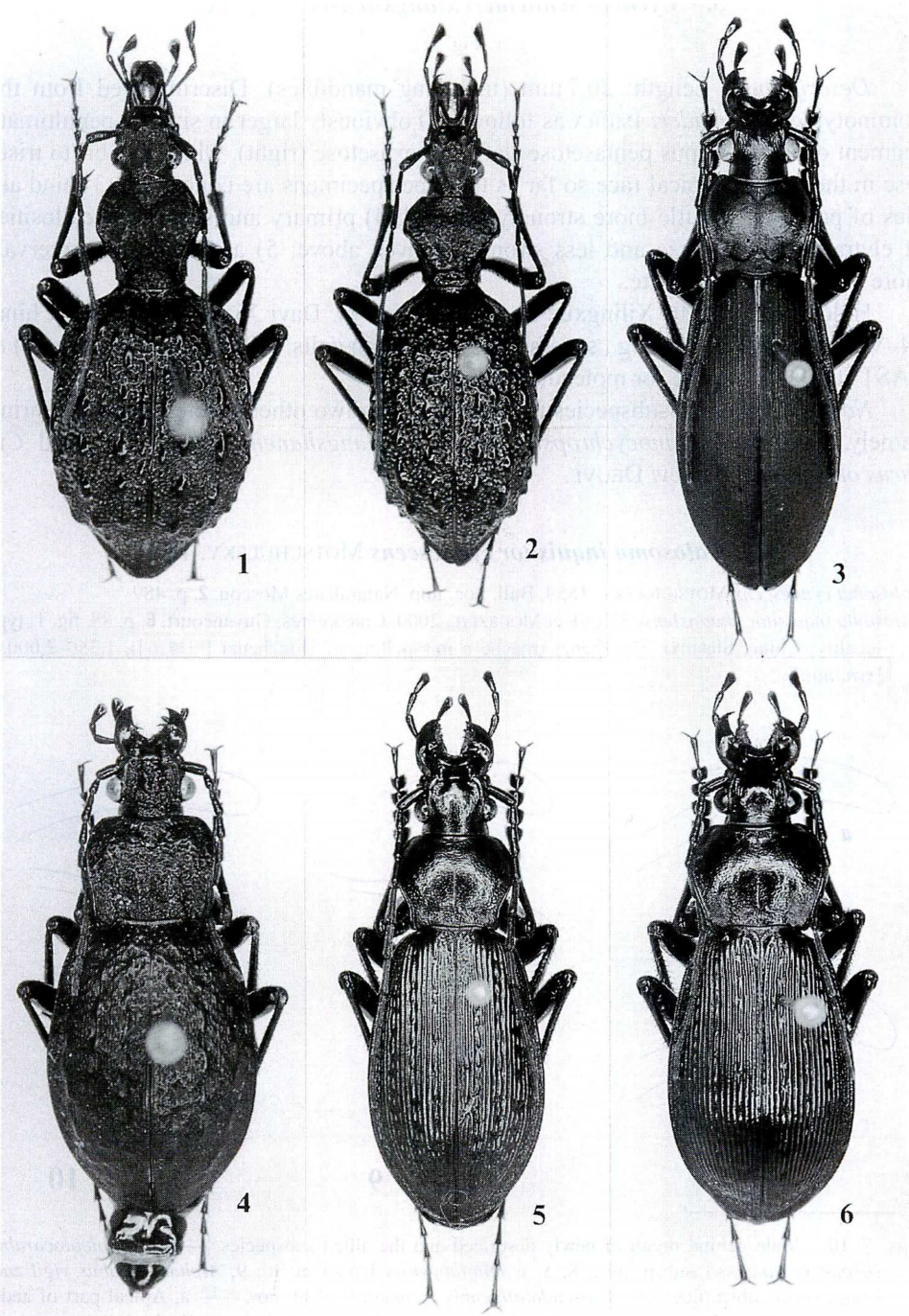
2. *Cychrus okamotoi shamaevi* DEUVE, stat. nov.

Cychrus shamaevi DEUVE, 1999, Coléoptères, Guyancourt, **5**, p. 205, figs. 15, 18; type locality: Chine, Sichuan, Xiling Shan, 1,100–1,500 m.

Specimens examined. 2♂♂, 7♀♀, Mt. Xilingxue Shan [西岭雪山] (2,100 m), W. Dayi Xian [大邑县], C. Sichuan, China, 14–VI–2002, MO & YN leg., in colls. YI & MO.

Notes. Though described as a distinct species, *C. shamaevi* DEUVE is doubtless allied to *C. okamotoi* IMURA, SU et OSAWA which seems to have been overlooked by the French author. After making a close comparative study between our specimens of *shamaevi* and the holotype of *okamotoi*, we have come to the conclusion that the former should be regarded as a local race of the latter. Incidentally, this taxon was compared in the description with the two species, “*Cychrus*” *brezinai* DEUVE and “*C.*” *casalei* CAVAZZUTI. It is true that these three taxa seem to share common characters such as strongly cordate pronotum and uniquely shaped elytra. As has been noted by IMURA (2002 b), however, *brezinai* and *casalei* cannot be the members of the genus *Cychrus* but belong to a unique subgenus *Shuocychropsis* in the genus *Cychropsis*, in view of both morphology and molecular phylogeny. External resemblance between *C. okamotoi* and *Shuocychropsis* is not due to synapomorphy but must be resulted by homoplasy.

Figs. 1–6. Holotypes of newly described subspecies. — 1, *Cychrus bispinosus micangshanensis* subsp. nov.; 2, *C. schneideri xilingxuensis* subsp. nov.; 3, *Sinoleptocarabus yokoae micangensis* subsp. nov.; 4, *Scambocarabus shaanxiensis yingshuibanus* subsp. nov.; 5, *Archaeocarabus vigil zaohongipennis* subsp. nov.; 6, *A. pseudolatipennis nagahatai* subsp. nov.



3. *Cychrus schneideri xilingxuensis* subsp. nov.

(Fig. 2)

Description. Length: 20.7 mm (including mandibles). Discriminated from the nominotypical *schneideri* IMURA as follows: 1) obviously larger in size; 2) penultimate segment of labial palpus pentasetose (left) or hexasetose (right), while it is bi- to trise- tose in the nominotypical race so far as the type specimens are concerned; 3) hind angles of pronotum a little more strongly reflexed; 4) primary and secondary callosities of elytra smaller in size and less strongly convex above; 5) areas between intervals more remarkably punctuate.

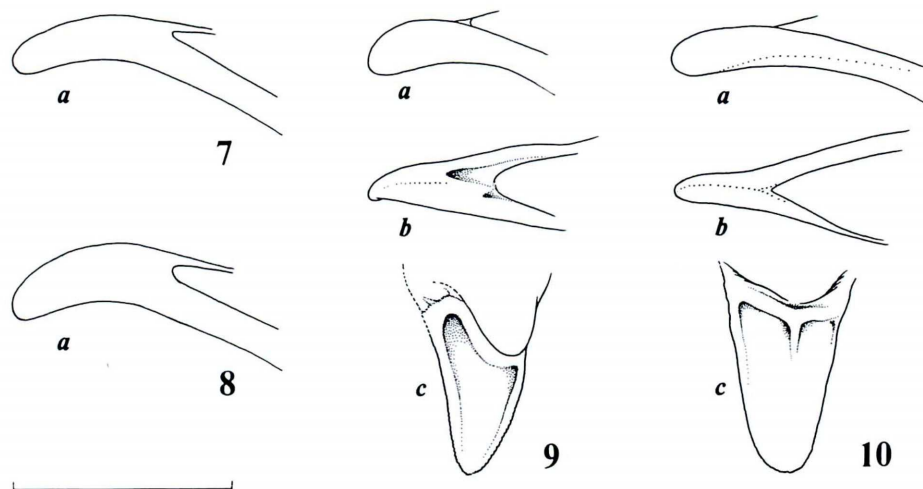
Holotype: ♀, Mt. Xilingxue Shan (2,100 m), W. Dayi Xian, C. Sichuan, China, 14–VI–2002, MO & YN leg., separately preserved in colls. NSMT (dried specimen) & LAST (thoracic muscle for molecular studies).

Notes. This new subspecies is sympatric with two other species of the Cychrini, namely, *Cychropsis* (*Sinocychropsis*) *draconis erlangshanensis* KLEINFELD and *Cychrus okamotoi shamaevi* DEUVE.

4. *Calosoma inquisitor cyanescens* MOTSCHULSKY, 1859

Calosoma cyanescens MOTSCHULSKY, 1859, Bull. Soc. imp. Naturalistes Moscou, **2**, p. 489.

Calosoma inquisitor shaanxiense DEUVE et MOURZINE, 2000, Coléoptères, Guyancourt, **6**, p. 88, fig. 1; type locality: Chine, Shaanxi, Haozhenzi (maybe a misspelling of Houzhenzi [厚珍子]), 1,350–2,000 m [syn. nov.].



Figs. 7–10. Male genital organ of newly described and the allied subspecies. — 7, *Sinoleptocarabus yokoae micangensis* subsp. nov.; 8, *S. y. nanjiangensis* IMURA et SU; 9, *Archaeocarabus vigil zao-hongipennis* subsp. nov.; 10, *A. pseudolatipennis nagahatai* subsp. nov. — a, Apical part of aedeagus in right lateral view; b, ditto in dorsal view; c, digitulus in ventral view. Scale: 1 mm.

Specimens examined. 5♂♂, 1♀ (19.7–24.3 mm in length including mandibles), above Yingshuiba (1,750 m), on the Micangshan Mts., N. Nanjiang Xian, NE. Sichuan, China, 12–VI–2002, MO & YN leg., in colls. YI & MO.

Notes. Though slightly different in the shape of aedeagal apex, which is rather sharply pointed at the tip and less strongly bent ventrad in lateral view, the Micangshan population is identifiable as subsp. *cyanescens* widely distributed in eastern Asia. The population of the Qinling Mountains in South Shaanxi was recently described as subsp. *shaanxiense* DEUVE et MOURZINE (in DEUVE, 2000, p. 88, fig. 1). However, the Qinling population is hardly discriminated from subsp. *cyanescens* in both morphology and molecular phylogeny (see OSAWA, SU & IMURA, 2002, p. 65), and the former is synonymized with the latter.

5. *Campalita davidi davidi* GÉHIN, 1885

Specimen examined. 1♂, Mt. Xilingxue Shan (2,100 m), W. Dayi Xian, C. Sichuan, China, 14–VI–2002, MO & YN leg., separately preserved in colls. YI (dried specimen) & LAST (thoracic muscle for molecular studies).

6. *Apotomopterus (Dolichocarabus) ascendens ascendens* SÉMÉNOW, 1898

Specimens examined. 4♂♂, 3♀♀, ca. 10 km N. of Yingpan [营盘] (940 m), Qingchuan Xian [青川县], Guangyuan Shi [广元市], NE. Sichuan, China, 7–11–VI–2002, MO & YN leg.; 1♂, Mt. Xilingxue Shan (1,050 m), W. Dayi Xian, C. Sichuan, China, 14–VI–2002, MO & YN leg., in colls. YI & MO.

Notes. Morphologically, this taxon seems to be nothing but a member of the *sauteri* complex in view of both external and male genitalic features. However, the molecular phyloanalysis using mitochondrial ND5 gene revealed that *ascendens* surely belongs to the same cluster as that containing *tonkinensis*, *delavayi*, *tuxeni* and *toulgoeti*, showing the closest affinity with *toulgoeti* (SU *et al.*, 2003, fig. 1). It is therefore placed in the subgenus *Dolichocarabus*.

7. *Sinoleptocarabus yokoe micangensis* subsp. nov.

(Figs. 3 & 7)

Carabus (Leptocarabus) yokoe nanjiangensis: IMURA & SU, 2000, Elytra, Tokyo, **28**, p. 3 [*partim*].

Description. Length: 24.5–29.4 mm (including mandibles). Allied to subsp. *nanjiangensis* IMURA et SU, but definitely differs from that race in configuration of the aedeagal apex, which is much slenderer and less strongly bent ventrad in lateral view as shown in Fig. 7.

Type series. Holotype: ♂, above Yingshuiba (1,870 m), on the Micangshan Mts., N. Nanjiang Xian, NE. Sichuan, China, 12–VI–2002, MO & YN leg., in coll. NSMT. Paratypes: 15♂♂, 19♀♀, same data as for the holotype; 4♂♂, 3♀♀, ditto

(1,750 m); 1♂, 9♀♀, Daba [大坝] (1,300 m), on the Micangshan Mts., in colls. YI & MO; 1♂ (paratype of subsp. *nanjiangensis*), below Daba (ca. 1,350 m), on the Micangshan Mts., 4–VI–1999, YI & Z.-H. SU leg., in coll. YI.

8. *Scambocarabus shaanxiensis yingshuibanus* subsp. nov.

(Fig. 4)

Description. Length: 18.4 mm (including mandibles). Allied to the nominotypical *shaanxiensis* DEUVE known so far only from a single female specimen collected from somewhere in Ankang Xian of South Shaanxi, but discriminated from it by the following points: 1) obviously smaller in size; 2) hind angles of pronotum more strongly protruded posteriad, with the tips a little more sharply pointed; 3) elytra robust, with the shoulders less strongly effaced.

Holotype: ♂, above Yingshuiba (1,750 m), on the Micangshan Mts., N. Nanjiang Xian, NE. Sichuan, China, 12–VI–2002, MO & YN leg., separately preserved in colls. NSMT (dried specimen) & LAST (thoracic muscle for molecular studies).

9. *Archaeocarabus vigil zaohongipennis* subsp. nov.

(Figs. 5 & 9)

Description. Length: 21.2–28.2 mm (including mandibles). Black with faint bluish, coppery or bronze tinge. Of the total 229 specimens examined, 36 were remarkably red-brownish in elytral coloration. Most closely allied to subsp. *guangwushanus* IMURA et SU, but discriminated from that race by the following points: 1) size a little larger on an average; 2) elytral colour variable according to individuals, while they are always black in *guangwushanus*; 3) apical lobe of aedeagus a little longer and slightly inflated before the tip in lateral view; 4) digitulus a little more sharply pointed at the tip.

Type series. Holotype: ♂, above Yingshuiba (1,750 m), on the Micangshan Mts., N. Nanjiang Xian, NE. Sichuan, China, 12–VI–2002, MO & YN leg., in coll. NSMT. Paratypes: 55♂, 74♀♀, same data as for the holotype; 37♂♂, 62♀♀, ditto (1,870 m), in colls. YI, MO & YN.

Etymology. This new subspecies is named after its elytral coloration, “Zaohong [枣红]”, which means maroon or brownish crimson in Chinese.

10. *Archaeocarabus pseudolatipennis nagahatai* subsp. nov.

(Figs. 6 & 10)

Description. Length: 19.7–24.2 mm (including mandibles). External morphology almost as in the nominotypical subspecies, but readily discriminated from it by much more narrowly elongate aedeagal apex and robust digitulus. Differs from subsp. *bashanensis* IMURA of the Dabashans (southeastern continuation of the Micang-

shans) by less strongly protruded hind angles of pronotum, longer and slenderer aedeagal apex and a little wider basal portion of digitulus. Median marginal setae of pronotum variable in number according to individuals; 1 to 5, usually 2 or 3, setae inserted on each side.

Type series. Holotype: ♂, above Yingshuiba (1,750 m), on the Micangshan Mts., N. Nanjiang Xian, NE. Sichuan, China, 12–VI–2002, MO & YN leg., in coll. NSMT. Paratypes: 37 ♂♂, 32 ♀♀, same data as for the holotype; 5 ♂♂, 13 ♀♀, ditto (1,870 m), in colls. YI, MO & YN.

Etymology. This new subspecies is named after Mr. Yoshiyuki NAGAHATA (Yonezawa), an eminent photographer and an enthusiastic collector of beetles, who helped the junior author in the field.

11. *Archaeocarabus shamaevi shamaevi* IMURA, 1996

Specimens examined. 21 ♂♂, 26 ♀♀, Mt. Xilingxue Shan (2,100 m), W. Dayi Xian, C. Sichuan, China, 14–VI–2002, MO & YN leg., in colls. YI, MO & YN.

12. *Archaeocarabus paris paris* BREUNING, 1932

Specimens examined. 1 ♂, 2 ♀♀, Mt. Xilingxue Shan (2,100 m), W. Dayi Xian, C. Sichuan, China, 14–VI–2002, MO & YN leg., in colls. YI & MO.

13. *Acathaicus alexandrae idolon* SÉMÉNOW, 1898

Specimens examined. 20 ♂♂, 12 ♀♀, near Hengdan Xiang [横丹乡] (720 m), EC. Wen Xian [文县], S. Gansu, China, 11–VI–2002, MO & YN leg., in colls. YI & MO.

14. *Eccoptolabrus exiguus exiguus* SÉMÉNOW, 1898

Specimen examined. 1 ♀, Pass Gongga-ling [弓嘎岭] (3,200 m), SW. Jiuzhaigou Xian [九寨沟县], N. Sichuan, China, 10–VI–2002, MO & YN leg., separately preserved in colls. YI (dried specimen) & LAST (thoracic muscle for molecular studies).

Notes. The nominotypical *exiguus* was described by SÉMÉNOW (1898, p. 400) based upon a single female specimen from “Sun-pan” (=Songpan [松潘]) of North Sichuan. Although not a few carabidologists have visited this area in the past several years, no additional specimen has been recorded from the type locality and its nearby regions, so far as we know. A single female specimen recorded here was trapped with *Tachycarabus pusio hylonomus*, *Hypsocarabus latro minshanensis*, *Aristocarabus viridifossulatus ventrosior*, *Pagocarabus crassesculptus diruptus*, *Pseudocranion zhanglaense*, *P. sackeni gamisiense* and *Cychrus stoetzneri*.

15. *Cephalornis potanini potanini* SÉMÉNOW, 1887

Specimens examined. 1♂, 1♀, near Hengdan Xiang (720 m), EC. Wen Xian, S. Gansu, China, 11–VI–2002, MO & YN leg., in colls. YI (♀, dried specimen) & LAST (♂, thoracic muscle for molecular studies).

16. *Coptolabrus formosus bousqueti* DEUVE, 1993

Specimens examined. 5♂♂, 2♀♀, near Hengdan Xiang (720 m), EC. Wen Xian, S. Gansu, China, 11–VI–2002, MO & YN leg., in colls. YI, MO & YN.

Notes. All the specimens examined are homogeneous in the coloration, i.e., the head and pronotum are black with the lateral margins of the latter bearing reddish coppery, red-purplish or weak greenish tinge, and the elytra are metallic green.

要 約

井村有希・岡本宗裕：中国四川省と甘肅省のセダカオサムシ族とオサムシ族（16種の記録と6新亜種の記載）。—— 中国四川省の米蒼山，九寨溝，西岭雪山ならびに甘肅省南部の文县から16種のセダカオサムシ族とオサムシ族（カタビロオサムシ亜族とオサムシ亜族）を記録し，うち6種を新亜種と認めて記載した。

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